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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

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In the Matter of:)

Federal-State Joint Board on Universal
Service)

Forward-Looking Mechanism for High
Cost Support for Non-Rural LECs)

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY
CC Docket No. 96-45

CC Docket No. 97-160

**COMMENTS OF GTE SERVICE CORPORATION
ON THE HYBRID COST PROXY MODEL**

GTE Service Corporation and its affiliated domestic telephone operating companies (collectively "GTE")¹ respectfully submit their Comments on the customer location and outside plant design modules of the Hybrid Cost Proxy Model ("HCPM").² As GTE has explained throughout this proceeding, carrier-specific, state-approved engineering models should be used to estimate the costs of providing universal service until a competitive bidding mechanism can be implemented. Proxy models by definition

¹ GTE Alaska, Incorporated, GTE Arkansas Incorporated, GTE California Incorporated, GTE Florida Incorporated, GTE Hawaiian Telephone Company Incorporated, The Micronesian Telecommunications Corporation, GTE Midwest Incorporated, GTE North Incorporated, GTE Northwest Incorporated, GTE South Incorporated, GTE Southwest Incorporated, Contel of Minnesota, Inc., and Contel of the South, Inc.

² The Commission requested comment on potential modules for determining customer location and outside plant design for non-rural carriers by November 26, 1997. Common Carrier Bureau Makes Available Potential Modules for Determining Customer Location and Outside Plant Design in Forward-Looking Mechanism for Determining Universal Service Support for Non-Rural Carriers, CC Docket Nos. 96-45, 97-160, DA 97-2311 (FCC Public Notice) (rel. Oct. 31, 1997).

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will not provide accurate calculations of the costs of providing universal service.

Unfortunately, HCPM is no exception.

The HCPM presented by the Commission staff suffers from many of the same problems as the other proxy models the Commission has considered. As with the Hatfield Model and BCPM, HCPM's cost estimates are based on a hypothetical network that assumes efficiency gains that are simply not present in the real world. In addition, the Model is based on static assumptions that do not take into account the constant changes in the telecommunications industry. Further, the documentation accompanying HCPM does not show whether any external validation testing has been undertaken. Without such testing, it is impossible to know whether the model is predicting costs accurately.

While carrier-specific models are being completed and approved by the states, the Commission should use BCPM, modified as recommended by GTE, with company-specific inputs to estimate universal service costs. BCPM is the best proxy model that has been presented to the Commission and will be a reasonable interim substitute until carrier-specific models can be approved.

I. HCPM DOES NOT MEET THE COMMISSION'S CRITERIA.

HCPM fails to meet several of the criteria adopted by the Commission for the development of a cost proxy model. First, the Model does not make "all underlying data, formulae, computations, and software associated with the model ... available to all interested parties for review and comment" or show that the "underlying data ...[are]

verifiable.”³ In fact, the algorithms and assumptions used to develop HCPM are not made clear in the documentation, and the minimal information provided is difficult to follow. Much more detailed explanations are necessary for interested parties to be able to examine HCPM fully and provide meaningful comment.

Second, the Commission has stated that “the study’s or model’s average loop length should reflect the incumbent carrier’s actual average loop length.”⁴ Because the Model uses a hypothetical network rather than considering actual facilities, it is unlikely that this requirement will ever be met. Moreover, the documentation accompanying HCPM does not show whether any validation tests on loop lengths have been conducted.

Finally, the Commission has identified a basic criteria of a cost model to be that “[a]ny network function or element, such as loop, switching, transport, or signaling, necessary to produce supported services must have an associated cost.”⁵ In its current version, HCPM does not assign costs to all network functions and elements. Mapping costs to all elements of the network is critical to ensuring that all costs of providing universal service are taken into account. Without such a cost breakdown, there is no way to verify if the Model is producing accurate estimates. The Joint Board and the Commission spent considerable time and resources developing a set of criteria

³ In the Matter of Federal-State Joint Board on Universal Service, 12 FCC Rcd 8776, 8915 (footnote omitted) (Report and Order) (1997).

⁴ *Id.* at 8913.

⁵ *Id.*

essential for ensuring fair allocation of universal service funds. The Commission should not adopt any cost model that does not meet these standards.

II. THE HCPM CUSTOMER LOCATION ALGORITHM HAS THE SAME FLAWS AS OTHER PROXY MODELS.

Although the Commission staff has attempted to develop an alternative modeling approach to the customer location proposals in BCPM and the Hatfield Model, HCPM still does not provide accurate customer location estimates. First, the HCPM models a hypothetical network, assuming no changes in the existing customer base. Such assumptions show efficiency gains and economies of scale that may not be achieved in the real world. For example, the HCPM claims to position the serving area interface ("SAI") box most efficiently by placing it closest to the centroid of the populated microgrids. However, actual SAI boxes are often not located in this way; as the population density surrounding the SAI box changes, different locations become the most efficient location point. If a model includes optimization techniques, they should be based on actual, company-specific data and capture the dynamics of demand growth and churn.

Second, HCPM fails to take roads into account, thus bringing the customer to the loop rather than bringing the loop to the customer. A properly designed proxy module should distribute customers along roads rather than assuming that they are equally distributed within a microgrid. Because the BCPM algorithm places customers along roads, it provides significantly more reliable results than HCPM.

Third, the HCPM customer location module allocates customers into incorrect microgrids. In its current configuration, HCPM assigns each Census Block ("CB") to a

particular microgrid. For example, if the centroid of the CB falls in a particular microgrid, the entire CB is assigned to the particular microgrid even if only a small fraction of the CB's customers are actually located in that microgrid. This algorithm can distort the Model's results and lead to inaccurate cost calculations.

III. HCPM'S LOOP DESIGN MODULE DOES NOT REFLECT REAL WORLD FACTORS.

In developing a model for loop design, the Commission staff must ensure that it takes actual cost and technology issues into account. GTE urges the Commission staff to reconsider the use of copper T1/digital loop carrier ("DLC") technologies as a least cost alternative to small fiber/DLC. Cost minimization must take into consideration not only the cost of installing equipment, but also the recurring expenses associated with provisioning, maintaining, and administering each element of the network. For example, the economic crossover decision should consider the fact that expense factors are higher for copper T1/DLC than fiber/DLC.

In addition, the HCPM documentation statement that "[w]ith traditional T1 technologies using repeaters, there is no maximum distance constraint, and the crossover point is determined by economic considerations"⁶ is incorrect. T1 technology factors are limited by both loss and resistance factors. Repeater spacing must be adjusted depending on structure choice (i.e. aerial, buried, or underground), and span powering is limited to approximately 126 kilofeet on 26 gauge aerial cable. Since there

⁶ C.A. Bush, D.M. Kennet, J. Prisbey, W.W. Sharkey and Vaikunth Gupta, The Hybrid Cost Proxy Model: Customer Location and Loop Design Modules, at 8 n.4 (Oct. 30, 1997) <http://www.fcc.gov/Bureaus/Common_Carrier/Other/hcpm/welcome.html>.

is no guarantee that DLC remote terminals will occur within that range, the use of intermediate power sites must be factored into the design of long loops.

Moreover, HCPM's use of a default fiber fill factor of 1.0 is not consistent with cost efficiency. Although the capacity of fiber facilities can be increased by upgrading the electronics on each end, a 1.0 fill factor does not provide any spare capacity for maintenance or for the development of new remote terminal sites along existing fiber cable routes. No efficient carrier will build either fiber or copper plant without spare capacity because to do so would be wasteful. If the Commission adopts a cost proxy model for determining universal service costs, it is imperative that it accurately reflect technological constraints and efficient business practices.

IV. COSTS MUST BE BROKEN DOWN BY DENSITY ZONE IN ORDER TO ENSURE SUFFICIENT SUPPORT FOR HIGH COST AREAS.

HCPM shows its cost calculations by wire center and for each quadrant of the wire center. However, it does not calculate cost by density zone and therefore ignores potentially wide disparities within a wire center. For example, if a wire center serves both rural and urban areas, HCPM reports only one average cost per wire center without noting that the rural areas have significantly higher costs than the urban areas. Since one of the purposes of a cost proxy model is to identify high cost areas, any model adopted by the Commission should be required to show costs by density zone. In addition to ensuring that carriers serving high cost areas are properly compensated, identifying these areas separately prevents competitive carriers from targeting only the low-cost customers in a particular area, leaving the ILEC with the higher cost customers and no universal service subsidies.

V. THE MICROGRID APPROACH USED BY HCPM IS SIGNIFICANTLY BETTER THAN THE HATFIELD MODEL'S CBG PROPOSAL.

The HCPM developed by the Commission staff uses the microgrid as the geographic unit to compute costs, in a manner similar to that used by BCPM. These microgrids are significantly smaller than the CBGs used in the Hatfield Model. As GTE has previously stated, using smaller units will produce a more accurate estimate of forward-looking costs.⁷

The most recent version of the Hatfield Model still uses CBGs as serving area proxies. As GTE and other commenters have shown, CBGs are simply too large a unit, and their use results in significant inaccuracies both in modeling the network and assigning households to wire centers.⁸ Moreover, the Commission recently reiterated that cost proxy models should produce an average loop length that reflects the ILEC's actual average loop lengths and that "[w]ire center line counts should equal actual ILEC wire center line counts."⁹ The Hatfield Model's use of CBGs precludes it from meeting these criteria.

⁷ Comments of GTE Service Corporation, CC Docket Nos. 96-45, 97-160 at 4-5 (filed Sept. 2, 1997).

⁸ See, e.g., *Id.* at 5-9; Joint Comments of BellSouth Corporation, BellSouth Telecommunications, Inc., U S WEST, Inc., and Sprint Local Telephone Companies to Further Notice of Proposed Rulemaking Sections III.C.1, CC Docket Nos. 96-45, 97-160, Attachment B (filed Sept. 2, 1997)

⁹ Guidance to Proponents of Cost Models in Universal Service Proceeding: Customer Location and Outside Plant, CC Docket Nos. 96-45, 97-160, DA 97-2372 (FCC Public Notice) (rel. Nov. 13, 1997) (internal marks omitted).

VI. CONCLUSION

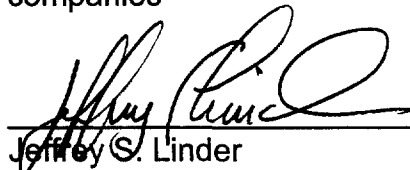
Because cost proxy models do not consider the actual costs of providing universal service, they cannot provide the “sufficient” funding required by Section 254 of the Communications Act. As a cost proxy model, HCPM suffers many of the same problems as the other models the Commission has examined. In addition, the documentation supporting HCPM does not provide enough information to give parties a chance to evaluate fully the Model’s algorithms and assumptions and fails to meet the Joint Board’s basic requirements.

A competitive bidding mechanism is a better approach because it will allow market forces to allocate universal service funding with no need to consider the actual costs of service. Until such a mechanism can be implemented, GTE urges the Commission to use carrier-specific, state-approved engineering models as the most accurate method of estimating the costs of providing universal service.

Respectfully submitted,

GTE SERVICE CORPORATION and its
affiliated domestic telephone operating
companies

By:



Jeffrey S. Linder

Gregory J. Vogt

Suzanne Yelen

WILEY, REIN & FIELDING

1776 K Street, N.W.

Washington, D.C. 20006

(202) 429-7000

Gail L. Polivy
GTE Service Corporation
1850 M Street, N.W.
Suite 1200
Washington, D.C. 20036
(202) 463-5214

Richard McKenna
GTE Telephone Operations
600 Hidden Ridge
Irving, TX 75038
(972) 718-6362

Its Attorneys

November 26, 1997

CERTIFICATE OF SERVICE

I hereby certify that on this 26th day of November, 1997, I caused copies of the foregoing COMMENTS OF GTE SERVICE CORPORATION ON THE HYBRID COST PROXY MODEL to be served on:

VIA HAND DELIVERY

The Honorable Rachelle B. Chong,
Commissioner
Federal Communications Commission
1919 M Street, N.W., Room 844
Washington, D.C. 20554

The Honorable Susan Ness,
Commissioner
Federal Communications Commission
1919 M Street, N.W., Room 832
Washington, D.C. 20554

The Honorable James H. Quello,
Commissioner
Federal Communications Commission
1919 M Street, N.W., Room 802
Washington, D.C. 20554

Tom Boasberg
Office of the Chairman
Federal Communications Commission
1919 M Street, N.W., Room 814
Washington, D.C. 20554

James Casserly
Office of Commissioner Ness
Federal Communications Commission
1919 M Street, N.W., Room 832
Washington, D.C. 20554

Kathleen Franco
Office of Commissioner Chong
Federal Communications Commission
1919 M Street, N.W., Room 844
Washington, D.C. 20554

Paul Gallant
Office of Commissioner Quello
Federal Communications Commission
1919 M Street, N.W., Room 802
Washington, D.C. 20554

Emily Hoffnar, Federal Staff Chair
Accounting and Audits Division
Universal Service Branch
Federal Communications Commission
2100 M Street, N.W., Room 8617
Washington, D.C. 20554

Timothy Peterson, Deputy Division Chief
Accounting and Audits Division
Federal Communications Commission
2100 M Street, N.W., Room 8613
Washington, D.C. 20554

International Transcription Service (ITS)
1231 20th Street, N.W.
Washington, D.C. 20036

Sheryl Todd (8 copies & diskette)
Accounting and Audits Division
Universal Service Branch
Federal Communications Commission
2100 M Street, N.W., Room 8611
Washington, D.C. 20554

VIA FIRST CLASS MAIL

The Honorable Julia Johnson, State Chair,
Chairman
Florida Public Service Commission
2540 Shumard Oak Boulevard
Gerald Gunter Building
Tallahassee, FL 32399-0850

The Honorable David Baker,
Commissioner
Georgia Public Service Commission
244 Washington Street, S.W.
Atlanta, GA 30334-5701

Philip F. McClelland
Pennsylvania Office of Consumer Advocate
1425 Strawberry Square
Harrisburg, PA 17120

The Honorable Sharon L. Nelson, Chairman
Washington Utilities and Transportation
Commission
1300 South Evergreen Park Dr. S.W.
P.O. Box 47250
Olympia, WA 98504-7250

The Honorable Laska Schoenfelder,
Commissioner
South Dakota Public Utilities Commission
State Capitol, 500 E. Capitol Street
Pierre, SD 57501-5070

Martha S. Hogerty
Public Counsel for the State of Missouri
301 West High Street, Suite 250
P.O. Box 7800
Jefferson City, MO 65102

Charles Bolle
South Dakota Public Utilities Commission
State Capitol, 500 E. Capitol Street
Pierre, SD 57501-5070

Deone Bruning
Nebraska Public Service Commission
300 The Atrium
1200 N Street, P.O. Box 94927
Lincoln, NE 68509-4927

Rowland Curry
Texas Public Utility Commission
1701 North Congress Avenue
P.O. Box 13326
Austin, TX 78701

Bridget Duff, State Staff Chair
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, FL 32399-0866

Sandra Makeeff
Iowa Utilities Board
Lucas State Office Building
Des Moines, IA 50319

Lori Kenyon
Alaska Public Utilities Commission
1016 West Sixth Avenue, Suite 400
Anchorage, AK 99501

Debra M. Kriete
Pennsylvania Public Utilities Commission
Commonwealth and North Avenues
North Office Building, Room 110
P.O. Box 3265
Harrisburg, PA 17105-3265

Thor Nelson
Colorado Office of Consumer Counsel
1580 Logan Street, Suite 610
Denver, CO 80203

Barry Payne
Indiana Office of the Consumer Counsel
100 North Senate Avenue, Room N501
Indianapolis, IN 46204-2208

James Bradford Ramsay
National Association of Regulatory Utility
Commissioners
1100 Pennsylvania Avenue, N.W.
P.O. Box 684
Washington, D.C. 20044-0684

Brian Roberts
California Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102

Keven Schwenzfeier
NYS Department of Public Service
3 Empire State Plaza
Albany, NY 12223

Tiane Sommer
Georgia Public Service Commission
244 Washington Street, S.W.
Atlanta, GA 30334-5701


Daphne A. Johnson